# NEW YORK NEUROLOGICAL SOCIETY.

April 5, 1904.

The President, Dr. Pearce Bailey, in the Chair.

*A Case of Myasthenia Gravis.*—Dr. L. Pierce Clark presented this case, which, in many respects, was typical and not of particular interest except that the diagnosis was made upon the myasthenic reaction and exhaustibility of the muscles of the shoulder and pelvic girdle. The rapid exhaustibility of the muscles was more marked upon the left side. The paresis that was present was very persistent, and there was a remarkable variability regarding the intensity of the symptoms. The patient's expression was sleepy, and there was some ptosis. The patient had been bed-ridden for three months, and up to three weeks ago the condition had grown progressively worse. Then she was given thyroid, and two days after the parents noticed a great improvement. She then could walk down stairs and go about. She had the gluteal walk. In addition to the thyroid she was given thymus gland, but it had not been given long enough to make a report as to its effect in this case. She also had the condition known as "dead finger." Certain of her fingers were in this typical state, which was brought about by cold, exhaustion and depressing emotions. Two months ago she developed facial edema, especially marked in the lips, and which looked as if some insect had stung her; this interfered with her speech, but that slowly passed away with her other symptoms. There was also tongue atrophy, which was rather atypical. One of the greatest features was the periodic attacks of diarrhea, which was not dependent upon other than increased peristalsis. The most marked exhaustibility was in the deltoid and trapezius muscles. The voice showed the peculiar nasal tone of the exhaustibility in these cases. The quadriceps extensor was but little involved. She has had "dropping spells" in the streets. There was some difficulty in swallowing in the past. There was a weakened handgrasp on each side. The galvanic and faradic currents do not give good responses in these cases.

Dr. Graeme M. Hammond asked if an examination had been made of the muscular tissue.

Dr. Clark answered that it had not been made, but he thought that in time he would get the patient's consent. The blood examination had not yet been made. He said that Dr. Henry Hun, of Albany, had suggested that there might be some irritation about the thymus gland, which stirred it up into activity, giving rise to this condition. Dr. Clark did not think that this was so, because the thymus had been found to be normal in so many of these instances.

*Tubercular Meningitis—Tubercle of Inferior Olive.*—Dr. L. Pierce Clark presented this specimen, which was removed from a patient fourteen years old, who had been referred to him by Dr. F. M. Cook on February 28, 1904. Headaches had existed for the past four months, and staggering for the past three weeks, and vomiting on rising in the morning. The family history was negative aside from the father's dying from chronic alcoholism. The boy was bright, intelligent and well developed for his age, but appeared dull at the examination. There was an unequal and irregular weakening in the following cranial nerves of the right side, seventh, eighth, ninth, tenth and twelfth. Dr. Holden made an ocular examination and reported the discs normal. There was bilateral ataxia in all movements of the upper and lower extremities. The patient walked a little to the right. The gait was markedly cerebellar, knee-jerks were bilaterally exaggerated, true ankle clonus was present at times, but there was no Babinski at any examination. Big toe flexion was, however, slower on the left side. On March 1 the patient became delirious, would eat nothing, and showed the first signs of a marked rise in body temperature. There was slight persistent pain over the right mastoid. The patient was referred to the Roosevelt Hospital. During the next week he had a continuous temperature ranging between 101 and 102.5, and for the most part he was in a semi-delirious condition day and night, suggestive of basilar meningitis. The blood count showed no leucocytosis, and two lumbar punctures were completely sterile. The diagnosis of solitary tubercle in the lower right half of the fourth ventricle and a more or less diffuse basilar meningitis, was held as the most tenable pathologic lesion to explain the symptoms. As a last resort an operation in two stages was advised to relieve pressure, and possibly later to remove a portion of the tumor. The first step was performed by Dr. Brewer in nine minutes. The patient stood the operation well but died the following day.

The report of the brain tumor found at autopsy was as follows: There was marked opacity of the pia at the base, most pronounced in the region of the Sylvian fissure, the anterior and posterior perforated spaces and the crura. The opacity was composed of minute whitish pin-points, scattered unevenly, and most numerous in the areas indicated. In the position of the right inferior olive there was a mass about the size of a small hickory nut. Its contour was not perfectly regular, generally oval, consistence markedly increased, and it was ultimately blended with the surrounding nervous tissue.

Dr. Pearce Bailey asked if a section had been made of the tumor.

Dr. Clark replied that he had tried to keep the tumor in its external appearance, and, therefore, no sections had been made of it.

*Case of Brachial Birth Palsy.*—Dr. A. S. Taylor presented this patient. The boy was born after a dry labor, with instruments, and after a great deal of traction had been made. At birth the child was greatly asphyxiated, and it took some time for his recovery. Afterward he was found to have paralysis of the right arm. During the first few months of life there was no improvement in his condition, but during the next year or two there was a slight improvement in the muscles of the right upper extremity. There was a cessation in the improvement two or three years ago, and from the time that he had seen the child, about ten months ago, the condition was as follows: There was a marked external rotation and contracture at the wrist. The deltoid showed paralysis, and there was considerable atrophy of it with displacement downward of the head of the humerus, perhaps one-half to one inch. He said the muscular changes and the reaction would be referred to by Dr. Clark in his paper. In the paralyzed muscles there was the reaction of degeneration and a great deal of atrophy of them. There was a marked lack of development between the bones of the two sides. There were two and one-half cm. between the clavicles, and there was also a difference in the length of the humerus and bones of the forearms.

Operation was performed nine months ago. A very interesting thing was noticed in this instance. The anterior nerve division derived from the junction of the fifth and sixth cervical roots was torn away and displaced downward 2.5 cm., and was adherent to the front of the scalenus anticus by firm fibrous adhesions. The nerve was dissected free and its damaged ends removed. The junction of the fifth and sixth nerves and the posterior division derived from them was the seat of cicatricial enlargement and induration. The damaged tissue was excised, the freshened ends sutured, Cargyle membrane wrapped about the junction, and the wound closed as usual. The patient was placed in a dressing which approximated the shoulders and neck, and this attitude was maintained for three weeks. Then the dressing was removed, and the patient was allowed freedom of his extremity, and was encouraged to move it as much as possible. From then on, under the supervision of Dr. Clark, he had received electricity and other treatment to develop the general condition of his muscles and made to use his muscles himself. For three months there had been more or less complete paralysis in all muscles supplied by the fifth and sixth cervical nerve roots. Now there was absolute return of nerve function. Before operation the hand had always been held in a markedly contracted position, and there had been ulnar deflection. The return in the musculo-spiral nerve function was most slow. The posterior dislocation of the humerus was very marked two months ago, and there was still a spontaneous rotation and reduction now going on.

*A Case of Obstetrical Palsy.*—Dr. Royal Whitman showed the case of a little girl, nine years old, who had a posterior rotation and displacement of the humerus. She was first seen last summer after she had been going for three months to various clinics. The humerus was rotated backwards, and there was anchylosis at the shoulder joint. The treatment adopted formed the subject of his paper. The first treatment consisted in efforts at replacement of the displaced bone. One extremity was much smaller than the other, which was also the case with the scapula. He showed the Section the amount of power that had been acquired by the deltoid. Supination was quite marked, but there was a limitation of flexion which was quite marked after the arm had been replaced. The patient was still under treatment, and Dr. Whitman demonstrated the method of over-distension, then outward rotation, then extension of the forearm, then supination, etc. It was, in fact, a demonstration of forcible manipulation which was absolutely necessary in these cases. The improvement in this patient had been very marked, and he believed that eventually there would be practically a recovery. He said that reposition of a dislocated shoulder would not cure the nerve lesion but would make it possible.

*A Case of Obstetrical Paralysis.*—Dr. Royal Whitman presented this woman. The arm of one side was about three and one-third inches shorter than the other. A diagram which he presented showed the condition as seen last summer. The patient now wore an apparatus during the day which kept the fingers in extension. There was great improvement in the condition of the fingers. This was an extreme case of obstetrical paralysis.

*A Case of Obstetrical Palsy.*—Dr. Royal Whitman showed this case, which was even more serious than the others. The original paralysis was on both sides in the arms. There was great difference between the two extremities. Until two months ago the patient could use only one hand to dress herself; under appropriate treatment there was noted an improvement.

*A Case of Obstetrical Paralysis.*—Dr. Royal Whitman presented this patient, which illustrated a form of posterior luxation and resistance to outward rotation. He said that if one expected to get good recovery from the employment of manipulation one must first overcome this resistance to normal motion.

*Brachial Birth Palsy and its Surgical Treatment.*—Drs. L. Pierce Clark and A. S. Taylor presented this communication, which was in the nature of an abstract, and was intended to cover only the principal facts brought out in a study of brachial birth palsy. A detailed account of the data would be published in full at a later date. While the clinical diagnosis was quite clear, its etiology was still mooted, although it was almost universally believed to be due to tension or compression of the fifth and sixth cervical roots. Tension probably played much the greater rôle in the causation, although both factors had been proven causative agents, both in clinical and experimental work. As a rule there was given a history of force having been applied during the birth of the child. In some abnormal presentations had been present. In all the cases that had come to their knowledge there had been either a history of traction, or else this factor could not be excluded. The one and constant factor in its production, in their opinion, was traction produced by forcible depression of the shoulder while the head was bent to the opposite side and rotated; in this the cervical nerve roots were overstretched, causing rupture of the nerve fibers over a considerable length of the nerve. The lesion was always in the fifth and sixth nerve roots, frequently also in the seventh, and occasionally in the eighth and first dorsal. From a brief review of the clinical picture of brachial birth palsy, its etiology and pathology, they said that one was impressed with the inadequacy of the present medical treatment. Surgical intervention naturally suggested itself, such as had been done in peripheral nerve injuries in general. Few secondary operations had been done upon the brachial plexus. During the past year they had operated upon four cases of brachial birth palsy. Details of the operation were given by Dr. Taylor in his discussion.

A relation of the four cases here followed. Fatal results occurred in the first and fourth cases, and this brought forth the question of the degree of shock involved in the division of large nerve trunks near their spinal origin. In the first case the length of the operation, and the fairly large loss of blood incident to it, obscured the problem. In the fourth case the operation was much shorter, the loss of blood slight, and the damage to the nerve much less. Still the result was practically the same, though not so rapid. The time consumed in all four operations was unquestionably too long; but this was due to (1) unexpected conditions demanding careful dissections; (2) the delicate manipulation necessary to the handling of nerve tissue; (3) lack of skilled assistants.

The following conclusions were presented:

1. The most important etiological factor in the production of brachial birth palsy is direct or indirect tension of the nerve trunks which caused rupture of nerve fibers.

2. An explanation of the persistence of the palsy is clearly based upon the pathological findings, which consist of a destruction of the axis cylinder by rupture of the nerve fibers and formation of an overgrowth of connective tissue between the torn nerve ends through which the nerve fibers cannot regenerate.

3. The nature of the lesion in all typical severe cases demand excision of the damaged nerves and suture of the good ends at the earliest possible moment, as in the treatment of peripheral nerve injuries elsewhere.

4. From the surgical viewpoint the desirable time for this interference is not yet determined. It would not, however, seem to be much later than two or three months after birth, as Kennedy advised.

5. The present medical treatment, consisting of an application of massage, electricity and systematized muscle movements, should follow the surgical interference.

6. The prevention of this serious lesion of the brachial plexus rested with the obstetrician, who should not stretch the child's neck in the process of delivery.

*Remarks on the Surgical Treatment of Obstetrical Palsy.*—Dr. Royal Whitman read this paper (see page 497).

Dr. Alfred S. Taylor opened the discussion by stating that the question of prophylaxis was the most important in the consideration of this subject, and, in order to have an intelligent grasp on the prophylaxis, one should know more regarding the etiology of the conditions met with. The books state that pressure upon the clavicle during birth, hyperextension of the arm, pressure of the forceps, pressure of the fingers, etc., during birth will cause the condition. In the later literature it will be found that tension is the chief factor. If one could give an exact etiology one could make great advances in prophylaxis. For this purpose he had had the privilege of examining many newly-born infants to determine whether he could find an exact etiology. He experimented on eight children, using great force in pulling on the neck away from the brachial plexus, and no matter how hard he pulled there always seemed to be present a pad of muscular and fatty tissue in which the nerves could sink, and it seemed to him that any damage to the brachial plexus from the application of such a force was only theoretical. He took still-born children and placed them in attitudes assumed during the process of delivery; then pushing back the clavicle he could not get even enough pressure to cause any marked tension of the nerves. Placing the arm back of the child's head did not place the nerves on sufficient tension to cause any damage. While the arm was in that position the forearm was firmly grasped, and the fifth and sixth nerves then were sufficiently loose so that they could be moved. Anything which depressed the shoulder and increased the distance between the shoulder and the neck caused greater tension of those nerves. In the living child one could place the finger between the anterior scalenus muscle and the nerves, when they would feel like fiddle strings. This forcible depression of the shoulder first caused a tension of the fifth and sixth nerves, and it was demonstrated that they would give away in the same position in which they were found in other cases upon which he had operated. First the fifth and sixth nerves would give away, then further pulling would cause a similar damage to the seventh nerve. It seemed to him that his experiments proved distinctly that the etiology of this condition was purely that of tension, and, therefore, the question of prophylaxis should be considered. This consisted in exercising care *not* to pull the head away from the shoulder when the latter was fixed, or *not* to pull on the shoulder away from the head when the latter was fixed. The Resident of Sloan Maternity Hospital reported six cases of Erb's palsy. In one the presentation was a normal vertex with the delay after the head was born. With but slight pulling the shoulders were delivered, and following this there was a double paralysis of the arms, which soon disappeared. It was of the Erb type. In another case of Erb's palsy the hand had been placed under the neck, and after delivery of the head, had pried upon it, so producing the condition. In four cases there were breech presentations. He said that one could readily see that if the forceps were applied to the head and force exerted when the shoulders were fixed, one would produce exactly the same condition of affairs as was noted in his experiments. Again in three breech presentations, if one pulled upon the legs before the arms were delivered, there would be no traumatism to the brachial plexus; but when the arms were delivered, if the fingers were placed over the shoulders the tips would rest upon the nerve cords themselves, and if any tension was produced there would be a greater tension and a greater lesion produced than if force had been applied without the finger tips over the nerve cords. He believed that this was the reason there were so many more cases in breech than in vertex presentations. Again, it was a question with him whether the bringing the child's body over upon the abdomen of the mother, so producing extension of the neck, would not produce the lesion. He had experimented upon this, and had found that the nerves were not very tense, not enough, certainly, to cause them such injuries. He said that a considerable degree of force was necessary to produce rupture of these nerves. He emphasized the fact that, in the delivery of every child, one should use a reasonable amount of caution to prevent these birth palsies.

Another interesting feature noticed when operating, was that not only was the nerve trunk itself damaged but also the deep cervical fascia, and this fascia was found adherent to the nerve trunks. He said that only that day he had seen a case at the Vanderbilt clinic which showed the same manner of traumatism ,and the same results as those that had been reported. Frequently one saw instances of men who had fallen from a height and struck upon the head and shoulders, and the resulting paralysis could be likened to that occurring in birth palsies, with the paralysis and atrophy of certain muscles. Pressure upon the branches of the fifth and sixth nerves revealed, in such instances, a marked degree of tenderness. It was the stretching of these nerves that caused the lesion. He said that it was worthy of comment in the operation proposed to refer to the importance of the suprascapular nerve. In his first two operations he did not appreciate the value of this nerve in the ultimate results. It was rather small in children, but it controlled largely external rotation of the humerus, and, therefore, one should use caution not to get it in line with the nerve sutures.

It seemed to him from the findings which were shown in the microphotographs, one could scarcely feel that a case of well-marked Erb's palsy could be cured without exsection of the nerve and suturing of it.

Dr. Whitman's paper, he said, treated of the reduction of the deformity before other measures were applied to the nerves for their regeneration. A reposition of the dislocated shoulder could not bring the muscular tissue into action if such tissue was not innervated.

Dr. B. Sachs said the subject was a most interesting one, as well as a very serious one, and that it was very necessary that we should have a clear understanding of many of the points raised. It should first be clearly understood that not all obstetrical palsies were cases of Erb's palsy, because he believed there were many obstetrical palsies that had nothing to do with the fifth and sixth cervical nerves; there were many instances in which traction upon the arm produced luxations and subluxations, and the pressure of the head of the humerus was at a point lower down than the fifth and sixth nerves. Therefore, he thought we should be careful in claiming that this method of operating was going to be a panacea, or one method of cure for obstetrical palsies. He said there was a natural mode of recovery in obstetrical palsies, even in those cases which appeared to be extremely severe from the time of birth. It was very important to watch these cases from the earliest period. He had been in a position to see obstetrical palsies from the day of birth, and had been able to follow them for years afterwards; he had had several children under observation. What he wished especially to emphasize was that if many cases were examined soon after birth there might be found a distinct subluxation of the head of the humerus, probably below the deltoid, which might possibly be identified with Erb's palsy; therefore, all cases of obstetrical palsies were not Erb's palsies. In one of his own cases a great deal had been accomplished by careful treatment by the early application of electricity, which was really another valuable form of gymnastics and the intelligent use of massage. That so many cases did well raised the question, he thought, as to what would be the proper time for operation, and this seemed to him to be a very serious matter for consideration. If one operated early there was then a tremendous amount of shock. Could we expect more from operation than from the inherent recuperative powers of the nerves and the muscles themselves? He believed that if there was muscular atrophy and a great deal of wasting, especially about the shoulder, no amount of suturing of nerves or transplanting of their divided ends would bring about thoroughly satisfactory results. In one of the cases presented he could not satisfy himself that there was the least deltoid action; the child exhibited nothing akin to deltoid action. He said he did not wish to discourage the operation in the least, because he was ready to believe that, in carefully selected cases, they might be benefited by operation. But, he said he was much puzzled regarding the proper time for operation. When should this operation be undertaken? that was the question.

The remarks of Dr. Whitman, he thought, were quite apropos and entirely correct. Much of the trouble was due to secondary changes in the muscles and ligaments about the joint, and this must be overcome before anything much could be expected from the surgical interference. He believed the operation was a dangerous one; aside from the hemorrhage and its subsequent shock, one should bear in mind the proximity of the cervical portion of the spinal cord, which adds to the danger. He hoped the operation would prove beneficial, but because many cases did well without operation he was reluctant to resort to this surgical procedure at present when it was attended with such dangers.

Dr. Carmalt spoke of the cases that had been operated upon during the second, third and fourth week of life. In one case fifth and sixth nerve roots were torn from the spinal cord, and nothing could be done, and the child died one month later. At autopsy it was demonstrated that the fifth and sixth nerve roots were torn from the cord itself; they were shredded out. The traumatism at the time of operation did not seem to be very great. In the second case the point of division was not at the point referred to by Dr. Taylor. It was only when these nerves were under some tension that they were liable to rupture. A little over 60 pounds pressure was found to be necessary to break the nerve, and he said that few obstetricians used that amount of power. At the hospital it had been demonstrated that one case required 60 pounds, and four others required between 80 and 100 pounds pressure before rupture occurred. In the third case rupture of the nerve took place and was a transverse rupture. It was easily sutured, and the child did well for six months, but died of an enteritis. Operation was done during the third week of life. The child had apparently recovered the use of the arm, but whether the nerve would ever have fully regenerated was a disputed point. Case three died of sepsis, five days after operation. He did not think the question of shock in the older cases was of such importance as in early life. One manipulated the spinal in spina bifida, where the trunks were larger than the fifth and sixth cervicals, and the amount of traumatism was as great, if not greater, and yet no apparent shock resulted. Hemorrhage should not influence the shock greatly, because it could be readily controlled. He thought that the time to operate in these cases of birth palsies would be somewhere between the fourth and fifth month, and not so late as the second or third year.

Dr. Terriberry believed that any contribution to this subject would be greatly welcomed. So far the reports of operations for birth palsies showed it to be a very serious performance. He said that undoubtedly there were many cases which were not the result of stretching, and he had in mind a case in which the end of the forceps impinged upon the fifth and sixth cervical roots, a very unusual thing. This case rapidly and completely recovered. This was a case of simple traumatism. He had had under observation a case of double palsy of the Erb type, which followed a breech presentation, and it was not in any way produced by traction. The trouble here was due to pressure upon the cervical roots. This child rapidly improved and both arms became about equal.

The question raised by Dr. Sachs he thought a very important one. If we are to operate, when should we operate? Everybody knew that these cases, if they improve, will improve slowly for a great length of time. The manipulations brought out by Dr. Whitman, he believed to be a great aid in the cure of these patients. He believed the whole question resolved itself now into the making of a correct diagnosis of the cause. A number of cases were undoubtedly due to pressure, traumatism being applied low down on the plexus. To operate on such cases, he believed, would be unwise. If by any possible means we could determine that the nerves were torn then the sooner the operation was done the better.

Dr. William M. Leszynsky said that considering the inherent power of the peripheral nerves to undergo regeneration, and in view of the fact that this was a dangerous procedure, he believed it would be wiser to wait for some time, keeping the arm in proper position, before we should resort to such a dangerous procedure. He said he would hesitate very much before he had any of his patients submitted to the operation, at any rate early in life.

Dr. B. Sachs said he did not think any one had a moral right to operate upon these children before several months had been allowed for their cure by other than operative means, because the operation was a dangerous one, and we should give a chance to the child to recover by the natural means.

Dr. George E. Brewer said he had had no experience with these cases, but he thought that enough pathological material had been presented to enable us, in a certain number of cases, to say positively that a rupture of the nerve or nerves had occurred, and in those cases which presented the Erb type it was obvious that no perfect result could be obtained unless some re-establishment of the nerve trunks was made. The question as to the gravity of the operation, he believed, should not be considered at the present time when only a few operations had been undertaken. He referred to the history of gall bladder operations, or appendicitis operations, etc., of their early failures and early high mortalities; yet, when the technique was improved and more experience had been gained in such cases, the mortality was greatly reduced, from 50 to 60 per cent. down as low as 2 per cent. Therefore, he did not think it right, in view of the few operations reported, to say that this operation was a particularly dangerous one. In one of Dr. Taylor's cases there was hyperpyrexia, the temperature going to 106, 107 and 108, and this in the presence of a sterile wound, he considered rather unusual. It resembled the temperature following thyroid operations. He said that unquestionably the operation could be performed with a much lower mortality when they had improved their technique, for children, as a rule, bore operations well. He said that Crile had demonstrated that by cocainizing the nerve trunks shock could be diminished tenfold. He had no doubt but that better results could be obtained after more operations had been done.

Regarding the time for operation in these cases he said that all who had seen nerve division and suture recognized the fact that the best results were obtained by operating as soon after the injury to the nerve took place as possible. Therefore, if surgical procedures were to be carried out they must be done relatively early. He believed that complete atrophy of the muscular fibers precluded the possibility of operation.

Dr. Wisner M. Townsend said that the causes of death in these cases might be due to various causes, which may be eliminated in the future. There might be something in the method of operating which would reduce this high mortality if eliminated. If it could be determined that rupture of the nerves had actually occurred then he thought combining the method suggested by Dr. Terriberry and that of Dr. Whitman would be very advantageous.

Dr. Pearce Bailey said that it seemed to him that the question gathered itself up into the matter of the time of operation. Those cases that were operated upon early seemed to do well, but when they were operated upon late he questioned if anything was to be gained. A paralysis that had existed two years or more did not offer much hope from operation. We should bear in mind the fact that very often the case is beyond the scope of operation. Statistics show that when the nerve roots are severed from the spinal cord there is nothing to be hoped for from operation. Many cases recover late, and often one might operate upon a case that would have recovered without operation. He said that upon these two points the question hinged, and more cases should be reported before anything definite could be decided.

Dr. Thomas P. Prout said that if the nerves were involved in foreign tissue it was impossible to repair the condition except by surgical means. There certainly was a certain number of cases that should be turned over to the surgeon.

Dr. L. Pierce Clark, in speaking of the various types of palsies, said that often one could disclose the particular type by palpation; also by noting the muscles paralyzed, the atrophy, the deformed arm, etc., all would give definite information where the lesion lay. With regard to the spontaneous recovery occurring, he said everybody took advantage of that after a certain length of time. After two or three years when atrophy had occurred and the muscles had undergone marked contractures, deformity was produced. The exact time for operation in these cases he could not determine. But there was one thing certain, that they did not intend to do the operation under one year of age. He said he was glad to hear what Dr. Whitman had stated regarding replacing the humerus and overcoming the contractures, and he hoped such information would enable them to bring out better results in the future. He thought that overcoming these old contractures and replacing the head of the humerus was a necessary adjunct.

Dr. A. S. Taylor closed the discussion by stating that if he had known the exact condition of the first child operated upon the child would be living to-day. The operation was a prolonged one, and there was much hemorrhage. The question of hemorrhage should always be considered in the operative treatment in these cases. The second case that died was in a very bad condition, and had been in the hospital for months requiring constant attention for recurring attacks of dysentery. The dysentery followed the operation and materially hastened the child's death, so they could not blame the operation for the death in this instance. In selected cases he did not consider the operation a very dangerous one, as it seemed to be from the statistics. The question of hemorrhage could be readily disposed of, because there was really but two small blood vessels that were severed.

Dr. Abrahamson, in speaking of the cause of death in the two cases, said that we should bear in mind the relation of the cervical cord and the sympathetic system. Hyperpyrexia and thyroidism could be explained by the connection between that part of the cord and the sympathetic system.